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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/164,392	09/30/1998	DONG-GYU KIM	33404/DBP/Y3	6608

7590 11/24/2004  
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EXAMINER

LIANG, REGINA

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 11/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/164,392	<b>Applicant(s)</b> KIM, DONG-GYU	
	<b>Examiner</b> Regina Liang	<b>Art Unit</b> 2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. The finality of the Office Action mailed 1/29/04 is withdrawn.

#### *Drawings*

2. Figures 1-5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the ""each gate line group comprising a first gate line, a second gate line adjacent to the first gate lines, and a connecting member coupled between the first gate line and the second gate line" (claim 11) and "the connecting member is interposed between pixels of different pixels" (claim 12) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure

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must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The original specification does not provide support for "a first distance between a first data line for a first pixel electrode of a first pixel group and a second pixel electrode of a second pixel group adjacent to the first pixel electrode is greater than a second distance between a second data line for the second pixel electrode and a third pixel electrode of the second pixel

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group adjoining the second data line” as is now claimed in independent claims 1, 6, 17. Fig. 10 of the specification discloses a first distance  $d_1$  is greater than a second distance  $d_2$ . However, the claimed first distance and second distance can not be read on the first distance and the second distance as shown in Fig. 10.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear and confusing as to “a first distance between a first data line for a first pixel electrode of a first pixel group and a second pixel electrode of a second pixel group adjacent to **the first pixel electrode** is greater than a second distance between a second data line for **the second pixel electrode** and a third pixel electrode of the second pixel group adjoining the second data line” (claims 1, 6, 17). It is unclear in that is this “the first pixel electrode” (line 3) in the first pixel group or the second pixel group? If “the first pixel electrode” is in the first pixel group (defined in the first pixel group), how can a second pixel electrode of the second pixel group be adjacent to the first pixel electrode of the first pixel group? It is also unclear how the second pixel electrode and a third pixel electrode adjoin the second data line? It is also unclear is “a second data line for the second pixel electrode” in the first pixel group or in the second pixel group?

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8. The following rejections are based on the claims as best as understood by the examiner in light of the 112, first and second deficiencies.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 4-6, 9, 10, 13, 17, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriyama (US. PAT. NO. 5,790,092).

As to claims 1, 6, 17, Figs. 10-12 of Moriyama discloses a LCD device having a plurality of gate lines (1) formed on a substrate (col. 8, lines 34-36) and a plurality of data lines (2) intersecting the gate lines, a matrix of a plurality of pixels, each pixel including a pixel electrode (3), and applying a common voltage to the common electrode (7). Figs. 13A and 13B of Moriyama shows dividing the plurality of pixels into a plurality of pixel groups and each pixel group comprising two pixels adjacent to each other (e.g., P(1,2), P(2,1)). Col. 12, line 67 to col. 13, line 8 of Moriyama also teaches an arbitrary pair of neighboring pixel in a column direction has the same polarity (this corresponds applying a data voltage of a positive polarity or a negative polarity with respect to the common voltage alternately to each pixel group per frame and the polarity of the data voltage applied to the pixels in the same pixel group is the same). Moriyama does not disclose a first distance and a second distance as claimed. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to

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modify the device of Moriyama to have a first distance and a second distance as claimed since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As to claim 4, Figs. 13A and 13B of Moriyama teaches the adjacent pixels (e.g., P(1,1), P(2,1) in the same column having the same polarity.

As to claims 5, 18, Figs. 13A and 13B of Moriyama teaches the adjacent pixels (e.g., P(2,1), P(3,1) in the same column having the different polarity.

As to claims 9 and 10, Moriyama does not disclose a first distance is two to six times greater than the second distance. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Moriyama to have a first distance which is two to six times greater than the second distance as claimed since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As to claim 13, Moriyama teaches the common voltage is applied through a common electrode formed on the substrate (col. 1, line 55 to col. 2, line 3, and col. 13, lines 20-24).

11. Claims 2, 3, 7, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriyama in view of Kalmanash (US. PAT. NO. 5,748,268).

As to claims 2, 7, Moriyama does not disclose each pixel group comprises three pixels. However, Hashimoto teaches in a color display, the pixels are generally grouped in units of three or four (col. 1, lines 59-67). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Moriyama to have three pixels in

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each pixel group as taught by Kalmanash since each color pixel can be individual addressed so as to provide a smallest addressable unit in a color display.

As to claims 3, 8, Kalmanash teaches each pixel group comprises R, G and B pixels (col. 1, lines 59-61).

12. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moriyama in view of Yamaguchi (US. PAT. NO. 4,986,637).

Moriyama does not the pixel group comprising a column of R pixels, a column of G pixels and a column of B pixels. However, Fig. 9 of Yamaguchi teaches the pixel group comprising a column of R pixels, a column of G pixels and a column of B pixels. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Moriyama to have R, G and B color pixels arrangement as taught by Yamaguchi so as to provide a color display including picture elements of three different colors which can be driven independently and to obtain the same display quality for each lines.

13. Claims 11, 12, 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriyama in view of Hirakata (US. PAT. NO. 5,847,687).

As to claims 19-21, Moriyama does not explicitly disclose how the common electrodes formed on the substrate. However, Fig. 5 of Hirakata shows a plurality of common electrodes formed on the substrate, wherein the common electrode (vertical part of the common line 13 as shown in Fig. 5) is parallel to the pixel electrodes (vertical part of the pixel electrode 14), and each common electrode is arranged between two adjacent pixel electrode. Thus, it would have



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been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Moriyama to have the common electrode and the pixel electrode as claimed so as to reduce potential variation of signals thereby lower the power consumption and to provide a compact display device.

As to claims 11 and 12, Hirakata teaches each pixel having a gate line, and the gate lines for the adjacent pixels are connected together (12 in Fig. 5). Moriyama teaches each pixel group having at least two pixels. Thus, Moriyama as modified by Hirakata would have gate line group (two gate lines in each pixel group) including a first gate line and a second gate line (one gate line for each pixel) as claimed.


### *Response to Arguments*

14. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (703) 305-4719. The examiner can normally be reached on Monday-Friday from 9AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (703) 305-4709. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

  
REGINA LIANG  
PRIMARY EXAMINER  
ART UNIT 2674

RL  
11/23/04